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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	)	
	)	
Lubbers, et al.	)	Group Art Unit: 2151
	)	
Serial No.: 10/043,924	)	Examiner: Tang, Karen C.
	)	
Filing Date: October 22, 2001	)	Confirmation No.: 9364
	)	
For: System and Method for Interfacing with Virtual Storage		

REPLY BRIEF

To: Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This Reply Brief is submitted in response to the Examiner's Answer mailed September 8, 2006.

STATUS OF CLAIMS

Claims 1-18 are pending in the application. In the Office Action mailed January 18, 2006, claims 1-18 were finally rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,538,669 to Lagueux ("the '669 patent").

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ARGUMENTI. The '669 Patent Cannot Anticipate the Pending ClaimsA. Legal Standard

The standard for lack of novelty, that is, for "anticipation," under 35 U.S.C. §102 is one of *strict identity*. To anticipate a claim for a patent, a single prior source must contain all its essential elements. *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 231 USPQ 81, 90 (Fed. Cir. 1986). Invalidity for anticipation requires that all of the elements and limitations of the claims be found within a single prior art reference. *Scripps Clinic & Research Foundation v. Genentech, Inc.*, 18 USPQ2d 1001 (Fed. Cir. 1991). Every element of the claimed invention must be literally present, arranged as in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). "The *identical* invention must be shown in as complete detail as is contained in the patent claim." MPEP §2131 (7<sup>th</sup> Ed. 1998) (citing *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)). Furthermore, functional language, preambles, and language in "whereby," "thereby," and "adapted to" clauses cannot be disregarded. *Pac-Tec, Inc. v. Amerace Corp.*, 14 USPQ2d 1871 (Fed. Cir. 1990).

"It is by now well settled that the burden of establishing a *prima facie* case of anticipation resides with the Patent and Trademark Office." *Ex parte Skinner*, 2 USPQ2d 1788, 1788-1789 (Bd. Pat. Int. 1986) (holding that examiner failed to establish *prima facie* case of anticipation). The examiner has "the burden of proof . . . to produce the factual basis for its rejection of an application under sections 102 or 103." *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984) (quoting *In re Warner*, 379 F.2d 1011, 1016, 154 USPQ 173, 177 (CCPA 1967)). Only if that burden is met, does the burden of going forward shift to the applicant.

*B. The '669 Patent Fails to Disclose Elements Recited in Claim 1*

Independent claim 1 recites a first limitation directed to:

a virtualized logical disk object representing a virtual storage container, wherein the virtualized logical disk is an abstract representation of physical storage capacity provided by plurality of physical stores.

The Examiner's Answer appears to assert that the LUN described in the '669 patent discloses this limitation. The Examiner's Answer cited column 2, lines 5-58, and column 7 lines 5-30, and Fig. 2 to support this assertion. The Examiner's Answer fails to cite any portion of the '669 patent.

Independent claim 1 recites a second, *separate* limitation directed to:

a virtual disk object representing a virtual storage container, wherein the virtual disk object is an abstract representation of one or more virtualized logical disk objects, the virtual disk object including an exposed management interface.

The Examiner's Answer appears to have altered the interpretation given to the '669 patent, and now asserts that the ISAN server 102A described in the '669 patent discloses this limitation and appears to cite column 2, lines 22-27, to support the assertion. Applicants disagree. Column 2, lines 22-27 reads as follows:

The user interface includes tools to configure virtual devices and virtual circuits, having a logical address such as a LUN number and target device identifier, to a set of physical storage devices coupled to communication interfaces in the storage server, and a set of client hosts coupled to communication interfaces in the storage server.

Initially, Applicants note that nothing in this text indicates that the text refers to the ISAN server 102A cited in the Examiner's Answer. Further, nothing in this text discloses (or even suggests) that the ISAN 102 disclosed in the '669 patent is *a virtual disk object representing a virtual storage container, wherein the virtual disk object is an abstract representation of one or more virtualized logical disk objects, the virtual disk object including an exposed management interfaces*, as recited in claim 1. To the contrary, the '669 patent

neither discloses nor suggests that the ISAN server 102A provides an abstract representation of virtualized logical disk objects. Thus, the assertion in the Examiner's Answer is unsupported by any evidence of record in this application. For this reason alone, the rejection of claim 1 under 35 U.S.C. §102 is improper and must be reversed.

Independent claim 1 further recites a limitation directed to:

wherein the virtual disk object is managed through the management interface to select the one or more logical disk objects represented by the virtual disk object.

The Examiner's Answer appears to assert that the '669 patent discloses this limitation, and cites column 2, lines 20-67 to support the assertion. Applicants disagree.

Column 2, lines 20-67 reads as follows:

The user interface includes tools to configure virtual devices and virtual circuits, having a logical address such as a LUN number and target device identifier, to a set of physical storage devices coupled to communication interfaces in the storage server, and a set of client hosts coupled to communication interfaces in the storage server.

The user interface provides tool for configuration of the storage system. It comprises a display and a user input device, such as a mouse, touch screen or other pointing device. Data processing structures are coupled with the display and the user input device, which include logic to manage images displayed on the display, either simultaneously in groups, in a logical sequence, or in an interactive sequence. The images include first image arranged to prompt the user to input data concerning host systems coupled to the server, the second image arranged to prompt the user to input data concerning storage resources including virtual devices and physical storage devices accessible using the server, and a third image arranged to prompt a user to input data concerning logical addresses used by the host systems access the storage resources. Also, a communication interface is included that is arranged to provide the input data to the server.

For a storage system supporting a plurality of host systems, the first image includes a graphic tool allowing a user to add a host to the plurality of host systems. Also, the first image may comprise the display construct, such as a table listing host systems available for configuration. The preferred embodiment, the table includes for each entry a host name field, a port number field for an identifier of the port in the server, and a protocol ID field for an identifier of the host for used by a storage channel protocol. Other fields can be included, such as a description field for a description of an associated host, and a unique identifier field, such as the field for a World Wide Name.

For storage systems supporting storage resources including a plurality of

storage elements, the second image includes a graphic tool allowing a user to add a storage elements to the plurality of storage elements. For example, the preferred embodiment the second image comprises a display construct such as icons arranged in a hierarchical tree, that indicate storage elements available for configuration.

Nothing in this text discloses (or even suggests) *wherein the virtual disk object is managed through the management interface to select the one or more logical disk objects represented by the virtual disk object*, as recited in claim 1.

In sum, the '669 patent fails to meet the strict identity standard required by *Richardson v. Suzuki Motor Co.* or to disclose or suggest elements of claim 1, and therefore cannot anticipate independent claim 1.

B. The '669 Patent Fails to Disclose Elements Recited in Claim 2

Dependent claim 2 recites:

a derived disk object coupled to the logical disk object and including methods and data structures configured to add storage protocol to the logical disk object.

The Examiner's Answer asserts that the '669 patent discloses this limitation, and now cites the HDM described in column 8, lines 20-26 and columns 2, 3, and 7 to support the rejection. Applicants disagree. Column 8, lines 20-26 reads as follows:

The HDMs provide BSA to SCSI translation and the HDM handles the interface to the drives that compose the drive array 132. Similarly, if the virtual circuit is a link to some other type of storage over the network interface 138, there will be a virtual device with support for BSA translation to the storage device communication channel protocol.

Contrary to the assertion in the Examiner's Answer, nothing in the '669 patent discloses or suggests that the HDMs described in the '669 patent are *coupled to the logical disk object*, as recited in claim 2. Further, nothing in the '669 patent discloses or suggests that the HDMs described in the '669 patent *add storage protocol to the logical disk object*, as recited in claim 2. To the contrary, the HDMs described in the '669 patent appear to be protocols associated with a service request. Therefore, the '669 patent cannot anticipate dependent claim 2.

C. The '669 Patent Fails to Disclose Elements Recited in Claim 3

Dependent claim 3 recites:

a presented disk object coupled to the derived disk object and including methods and data structures configured to expose an virtual disk interface to selected clients.

The Examiner's Answer asserts that the '669 patent discloses this limitation, and now cites the communication channel drivers cited in column 8, line 17 and columns 15, 20, 21 and Fig. 20, reference numeral 1466 to support the rejection. Applicants disagree. Column 8, lines 15-17 reads as follows:

The final virtual device in a virtual circuit is typically the format translation and communication channel drivers for controlling the storage.

Contrary to the assertion in the Examiner's Answer, nothing in the '669 patent discloses or suggests that the communication channel drivers described in the '669 patent are *coupled to the derived disk object*, as recited in claim 3. Further, nothing in the '669 patent discloses or suggests that the HDMs described in the '669 patent *expose[s] an virtual disk interface to selected clients*, as recited in claim 3. Therefore, the '669 patent cannot anticipate dependent claim 3.

D. The '669 Patent Fails to Disclose Elements Recited in Claim 4

Dependent claim 4 recites:

a network storage controller including a processor and memory,  
wherein the logical disk object and virtual disk object are implemented in  
memory of the network storage controller.

The Examiner's Answer asserts that the '669 patent discloses this limitation, and now  
cites the processor and memory of ISAN 102A described in column 5, line 45 column 21,  
lines 40-41, and columns 9, lines 14-16 to support the rejection. Applicants disagree.

Initially, Applicants note that the interpretation given the '669 patent in the  
Examiner's Answer is internally inconsistent with the interpretation given of claim 1. The  
Examiner's Answer asserted that the ISAN server 102 described in the '669 patent  
corresponds to the virtual disk object recited in claim 1. The Examiner's Answer now asserts  
that the virtual disk object is instantiated in the memory of the network storage controller.  
Thus, according to the interpretation of the '669 patent in the Examiner's Answer, the ISAN  
102A instantiates itself. This is not a plausible interpretation.

The cited text reads as follows:

The ISAN server 102A also provides higher bandwidth and higher throughput  
processing of storage transactions than a typical hard disk drive or hard drive  
array.

The ISAN server 102A, in one embodiment, provides a platform for cache  
memory which is shared among a plurality of virtual circuits.

FIG. 16 illustrates another embodiment of a storage area network. In FIG. 18,  
a server 1250 which includes storage director logic and cache memory as  
discussed above, is coupled to client servers on a variety of different  
platforms, including a Hewlett-Packard server 1255, a Sun server 1256, and a  
SGI server 1257, each of which may be executing different protocols  
management of storage transactions.

Contrary to the assertion in the Examiner's Answer, nothing in the '669 patent  
discloses or suggests *a network storage controller including a processor and memory,*  
*wherein the logical disk object and virtual disk object are implemented in memory of the*



*network storage controller*, as recited in claim 4. Therefore, the '669 patent cannot anticipate dependent claim 4.

*E. The '669 Patent Fails to Disclose Elements Recited in Claim 8*

Dependent claim 8 recites:

the storage cell client object is capable of representing a host management agent located in any network-coupled computing device.

The Examiner's Answer asserts that the '669 patent discloses this limitation, and now cites column 7, lines 10-20 to support the rejection. Applicants disagree. The cited text reads as follows:

The block storage interface 118 provides software modules to support block data transfers. The interface 118 includes support for striped data storage, mirrored data storage, partitioned data storage, memory cache storage, and RAID storage. The different supported storage types can be linked to form various combinations such as a mirrored data storage with a memory cache.

The protocol interface 122 provides software modules for translating and responding to requests in a variety of protocols. One set of modules is provided for the layers of an Ethernet connection: the hardware driver, the data link driver, the Internet protocol (IP) driver, the transmission control protocol (TCP) driver, the user datagram protocol (UDP) driver, and other drivers. Another set of modules provides drivers for FCP.

Nothing in this text discloses (or even suggests) *the storage cell client object is capable of representing a host management agent located in any network-coupled computing device*, as recited in claim 8. Therefore, the '669 patent cannot anticipate dependent claim 8.

F. The '669 Patent Fails to Disclose Elements Recited in Claim 13

Dependent claim 13 recites:

verifying that at least four physical store objects were specified before creating the storage cell object.

The Examiner's Answer asserts that the '669 patent discloses this limitation, and cites the disk array 132 depicted in Fig. 1 and column 8, line 23 to support the rejection.

Applicants traverse this rejection, and assert that the Examiner's Answer fails to establish a *prima facie* case of anticipation. The text surrounding column 8, line 23 reads as follows:

The HDMs provide BSA to SCSI translation and the HDM handles the interface to the drives that compose the drive array 132. Similarly, if the virtual circuit is a link to some other type of storage over the network interface 138, there will be a virtual device with support for BSA translation to the storage device communication channel protocol.

Nothing in this text discloses (or even suggests) specific operations associated with a port, much less that *verifying that at least four physical store objects were specified before creating the storage cell object*, as recited in claim 13. Therefore, the '669 patent cannot anticipate claim 13.

To the extent that the Examiner's comments indicate that the Examiner considers this limitation of claim 13 taught by inherency, Applicants assert that the record fails to provide any factual support for a finding of teaching by inherency. To prove inherency, the Examiner must establish that the '669 patent necessarily requires the limitation recited in claim 13.

Continental Can Co. U.S.A. v. Monsanto Co., 948 F.2d 1264, 1268 (Fed. Cir. 1991). There is no showing on the record that the disk array 132 of the '669 patent necessarily requires *verifying that at least four physical store objects were specified before creating the storage cell object*, as recited in claim 13. Therefore, the '669 patent cannot anticipate claim 13.

G. The '669 Patent Fails to Disclose Elements Recited in Claim 14

Dependent claim 14 recites:

verifying that sufficient physical store objects were specified to satisfy the requested device failure protection level before creating the storage cell object.

The Examiner's Answer asserts that the '669 patent discloses this limitation, and now cites column 8, lines 1-2 to support the rejection. Applicants traverse this rejection, and assert that the Examiner's Answer fails to establish a *prima facie* case of anticipation. Column 8, lines 1-2 reads as follows:

A virtual circuit comprises the necessary virtual devices to support a storage transaction.

Nothing in this text discloses (or even suggests) specific operations associated with a port, much less that *verifying that sufficient physical store objects were specified to satisfy the requested device failure protection level before creating the storage cell object*, as recited in claim 14. Therefore, the '669 patent cannot anticipate claim 14.

To the extent that the Examiner's comments indicate that the Examiner considers this limitation of claim 14 taught by inherency, Applicants assert that the record fails to provide any factual support for a finding of teaching by inherency. To prove inherency, the Examiner must establish that the '669 patent necessarily requires the limitation recited in claim 14.

Continental Can Co. U.S.A. v. Monsanto Co., 948 F.2d 1264, 1268 (Fed. Cir. 1991). There is no showing on the record that the '669 patent necessarily requires *verifying that sufficient physical store objects were specified to satisfy the requested device failure protection level before creating the storage cell object*, as recited in claim 14. Therefore, the '669 patent cannot anticipate claim 14.

H. The '669 Patent Fails to Disclose Elements Recited in Claim 15

Dependent claim 15 recites:

verifying that ports on the network storage controller are operational before creating the storage cell object.

The Examiner's Answer asserts that the '669 patent discloses this limitation, but provides *no evidence whatsoever* for the assertion. Therefore, the rejection of claim 15 is improper and must be withdrawn.

To the extent that the Examiner's comments indicate that the Examiner considers this limitation of claim 15 taught by inherency, Applicants assert that the record fails to provide any factual support for a finding of teaching by inherency. To prove inherency, the Examiner must establish that the '669 patent necessarily requires the limitation recited in claim 15.

Continental Can Co. U.S.A. v. Monsanto Co., 948 F.2d 1264, 1268 (Fed. Cir. 1991). There is no showing on the record that the '669 patent necessarily requires *verifying that ports on the network storage controller are operational before creating the storage cell object*, as recited in claim 15. Therefore, the '669 patent cannot anticipate claim 15.

I. The '669 Patent Fails to Disclose Elements Recited in Claim 16

Dependent claim 16 recites:

verifying that all of the selected physical store objects are in an operational condition before creating the storage cell object.

The Examiner's Answer asserts that the '669 patent discloses this limitation, and simply cites column 16 to support the rejection. The Examiner's Answer asserts that the '669 patent discloses this limitation, and now cites column 20, lines 37-40 to support the rejection. Applicants traverse this rejection, and assert that the Examiner's Answer fails to establish a *prima facie* case of anticipation. Column 20, lines 37-40 reads as follows:

1. Attempt to validate the information in the newly inserted record. If the record contains invalid information, its status field is set to indicate the error and no further action is taken.

Nothing in this text discloses (or even suggests) *verifying that all of the selected physical store objects are in an operational condition before creating the storage cell object*, as recited in claim 16. Therefore, the '669 patent cannot anticipate claim 16.

J. The '669 Patent Fails to Disclose Elements Recited in Claim 17

The rejections applied to claim 17 appear to parallel those applied to claim 1. Hence Applicants assert that these rejections are improper for the same reasons applied to claim 1.

CONCLUSIONS

The '669 patent fails to disclose each limitation of the pending claims. Therefore, neither the '669 patent cannot be used to establish the required *prima-facie* case of anticipation under 35 U.S.C. §102. Appellants urge the Board to reverse the examiner's rejections under 35 U.S.C. §102 of claims 1-18.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read 'Jed W. Caven', with a stylized flourish at the end.

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PATENT APPLICATION

ATTORNEY DOCKET NO. 200302351-1

IN THE  
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Lubbers, et al.

Confirmation No.: 9364

Application No.: 10/043,924

Examiner: Tang, Karen C.

Filing Date: October 22, 2001

Group Art Unit: 2151

Title: System and Method for Interfacing with Virtual Storage

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Commissioner For Patents  
PO Box 1450  
Alexandria, VA 22313-1450

TRANSMITTAL OF REPLY BRIEF

Transmitted herewith is the Reply Brief with respect to the Examiner's Answer mailed on September 8, 2006.

This Reply Brief is being filed pursuant to 37 CFR 1.193(b) within two months of the date of the Examiner's Answer.

(Note: Extensions of time are not allowed under 37 CFR 1.136(a))

(Note: Failure to file a Reply Brief will result in dismissal of the Appeal as to the claims made subject to an expressly stated new ground rejection.)

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